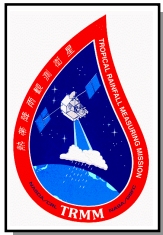


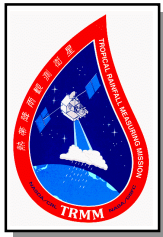
TRMM Flight Operations Monthly Status Review (MSR)

May 30th, 2001



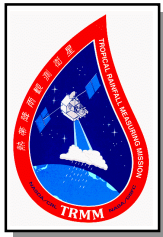
FOT Subsystem Overview

- Operations Status
 - Flight Ops Summary - Lou Kurzmilller
 - ACS & FDS / C&DH - Mark Fioravanti
 - RCS & RF / Comm. - Dave Sepan
 - Electrical & Thermal - Dave Sepan
 - Power & Deployables - Justin Knavel
 - LIS - Justin Knavel
 - CERES & VIRS - Mark Fioravanti
 - TMI & PR - Dave Sepan
 - Ground System - Dan Palya
 - Upcoming Activities - Lou Kurzmilller



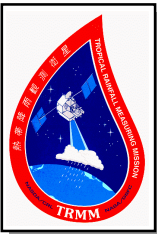
Flight Operations Summary

- Supported 556 SN events in May
 - 1 Yaw Maneuver
 - 8 Delta-V Maneuvers
- 3 Anomaly Rpts; 5 Event Rpts & 2 Generic Late Acq Rpts generated
 - AR #87: GSACE A DCM +5V Converter - Closed
 - AR #88: ACS,GSACE, PWR tlm spikes - Closed
 - AR #89: PWR tlm dropouts, Possible Auto-SPRU
 - ER #232: SN; Operator Error at STGT
 - ER #233: MOC H/W; 2 hard drives replaced String 2
 - ER # 234: MOC S/W; String 1 unable to call current page directory
 - ER #235: SN; IONET Problem WSC-GSFC; No data lock entire event
 - ER #236: SN; WSC showed an event not on FOT confirmed event list



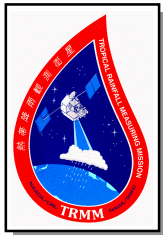
Flight Operations Summary

- Notable Events
 - Extensive analysis of data downlink anomalies
 - Some CERES instrument activity
 - 1 console analyst, 1 Subsys Eng left FOT
 - Hired one console analyst
 - Waiting to fill Subsys Eng slot



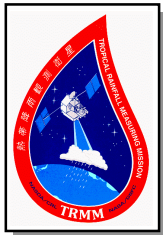
Flight Ops Summary

SPECIAL SPACECRAFT EVENTS AND ACTIVITIES FOR TRMM 2001													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
2	8	7	10	12	8								45
2a	1	1	1	2	1								6
2b	0	0	0	0	0								0
2c	0	0	0	0	0								0
3	1	0	1	1	0								3
3a	1	4	2	9	3								19
3b	3	2	1	3	2								11
3c	1	1	1	5	1								9
3d	0	0	0	0	0								0
3e	1	0	0	0	1								2
3f	2	2	5	2	2								13
4	3	1	0	0	1								5
4a	0	2	2	2	2								8
4b	1	1	2	1	2								7
4c	0	0	0	0	6								6
4d	5	0	3	8	4								20
4e	0	0	0	1	0								1
5	3	0	2	4	1								10
5a	0	0	0	0	5								5
5b	0	5	0	0	0								5
5c	0	0	0	0	0								0
TOT:	30	26	30	50	39	0	0	0	0	0	0	0	175
LEGEND													
STANDARD CATEGORIES				TRMM-SPECIFIC SUB-CATEGORIES AND EXAMPLES									
1	Targets of Opportunity			N/A									
2	S/C Maneuvers			DeltaVs (2), 180° Yaw Maneuvers (2a), 90° Yaws (2b), Deep Space Cals (2c)									
3	Unplanned Commanding			Blind Acqs (3), Patch Loads (3a), Manual DS Ops due to Blind Acqs, MI, etc. (3b), EPVs Fail (3c), VIRS Reset Ops (3d), Anomaly Recoveries (3e), Generic Late Acqs - GCMRs / DS Ops (3f)									
4	Customer Requests			PR (4), VIRS (4a), LIS (4b), CERES (4c), FSW (4d), AETD (4e)									
5	Ops due to Celestial Phenomena			UTCf / FS Ops (5), Power Ops - Autospru, TSMs, C/D (5a), Xpdr Offset Ops (5b), Leonids (5c)									
6	Pre-Launch Testing			N/A									
7	L&IOC Operations			N/A									
8	EOL Operations			Delta-H Firings(8), Reentry Maneuvers (8a)									
NOTE: This Record Documents S/C Activities and Does Not Include Other Special Activities Such as Ground System Testing, Simulations, Trending, or New Database, Script, Code, or Procedure Development...													



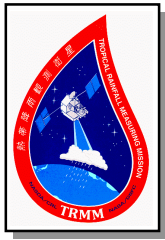
ACS Subsystem

- Solar Array Off-Pointing Test.
 - See Power Section for more details.
- ACS Ancillary Position Error Jumps (Anomaly #86)
 - Extensive Trending revealed that telemetry spikes were not seen on the spacecraft, and was a problem with one of PACOR-II's Front Ends.



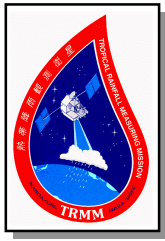
ACS Subsystem

- Open ACS CCRs (In order of Priority);
 - CCR #069: New table 85 to match new TDRS-8 continuity limits for other TDRS, and another table 85 to widen the limits after an update failure.
 - CCR #070: New version of Table 61 to incrementally pitch the S/C while in Sun Acq, if Solar Array fails.
 - CCR #005: Correction for Magnetic Field Epoch, if contingency mode is required for EOL activities.
 - CCR #065: Update ACS system tables in preparation for EOL activities.
 - » Table #73 (Thruster Parameters)
 - » Table #90 (Mode Configuration Data for Contingency)
 - CCR #053: ACS FS/W bug



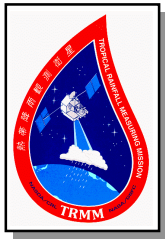
FDS/C&DH Subsystems

- UTCF Status;
 - No Adjustments were performed. The next one is expected on 01-152 (Fri. June 1st).
 - Current UTCF value is 31535996.824677 sec
 - A FS Adjustment was performed, on 01-121 (Tues., May 1st) and was adjusted by 12 counts to x'7C6'.
- Open CCRs;
 - CCR #047: Will work with FSW on no-clock software patch activities
 - CCR #048: New on-board DS filter table to record ACE 8-Hz data
 - CCR #077: Create a TSM to monitor the bus voltage in case of a PSIB telemetry failure.



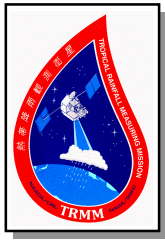
RCS Subsystem

- RCS performed 8 successful Delta-V maneuvers (#303 - #310)
 - Current fuel remaining is 413.251 kg
- EOL estimate is approximately **March, 2003**, using 157kg of fuel as a baseline.
- No Open RCS Anomaly or Event Reports
- Upcoming Events
 - Begin review of, and training in, Delta-H procedures, EOL scripts, and a “one-shot” procedure.
 - Review all required steps for a 30+ minute Delta-V maneuver and test with the simulator.



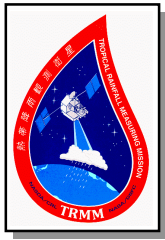
RF Subsystem

- 2 Generic Late Acquisitions (#93-94)
 - 125/150000z TDS event: Locked up @ 150234z. One fwd reacq. was sent. Dump was performed. All data recovered.
 - 128/091100z TDW event: Locked up @ 091240z. One fwd reacq. was sent. Dump was performed. All data recovered.
- Frequency offsets (monthly average)
 - Transponder #1 = +724.173 Hz
 - Transponder #2 = -853.737 Hz
- No RF Event Reports or MOCRS this month
- Upcoming Events
 - Offset of transponder 2 frequency may occur in June.



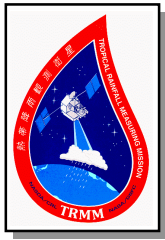
Thermal / Electrical Subsystems

- Thermal subsystem remains nominal; no open issues other than AETD will try to confirm whether one omni antenna is more vulnerable to atmospheric heating just prior to reentry.



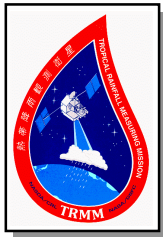
Power Subsystem

- ACS, GSACE, and Power Telemetry Spikes (Anomaly #88)
 - WBBAT2AHIN and WBBAT1AHOUT experienced 1 sample spikes on 3 different occasions in the LEVEL0 data. The spikes did not appear in the T1 data. This is the same PACOR-II Front End problem which caused the ACS and GSACE telemetry spikes.
- From 01-123 (May 3rd) to 01-135 (May 15th), Auto-SPRU was enabled to prevent overcharging at high Beta angles.
 - Power Telemetry Dropouts while Auto-SPRU enabled (Anomaly #89)
 - » While Auto-SPRU was enabled, different telemetry points, which had not been spiking since PSIB B was turned on, began to spike. When Auto-SPRU was disabled, the new telemetry spikes disappeared.
 - » When Auto-SPRU is disabled, Battery 1 Cell 22 voltage telemetry spikes low several times a day. When Auto-SPRU is enabled, Battery 2 Cell 22 voltage telemetry spikes low several time a day and Battery 1 Cell 22 stops spiking. This shifting is also seen before and after the PSIB Software Timer Patch is loaded .
- On 01-151 (May 31st), FSW is planning a Code Review for the S/C Processor Current filter. The filtered S/C Processor Current will be used to determine Essential Bus Voltage.



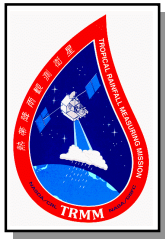
Power Subsystem

- Off-pointing the Solar Array by 55 degrees
 - A 2 orbit Solar Array off-pointing test will be conducted on 01-150 (May 30th).



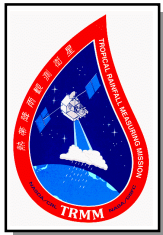
Deployables Subsystem

- GSACE A DCM +5V Converter Anomaly (Anomaly #87)
 - On 01-101 (April 11th), the current and voltage began experiencing 1 sample spikes a few times each day. The current spiked to 2.18A and the voltage spiked to 0.49V. A constant 0.49V value of voltage indicates a failure of the +5V converter.
 - Further investigation showed select telemetry was shifted in the packet, indicating a telemetry problem and not a converter problem.
 - This anomaly report was closed and a new Telemetry Spike anomaly report (Anomaly #89) was opened.
- ACS, GSACE, and Power Telemetry Spikes (Anomaly #88)
 - Starting on 01-101 (April 11th), in addition to the GSACE current and voltage telemetry, several other GSACE telemetry points spiked but less frequently than the current and voltage.
 - Comparing the Level0 data (captured by PACOR-II) and the T1 data (captured by MOC), the spikes appeared in the Level0 data but not in the T1 data. Also, the spikes did not appear in the PACOR-A data.
 - After PACOR-II switched to a different Front End, the telemetry spikes disappeared.
- Solar array drives and HGA continue to operate nominally.



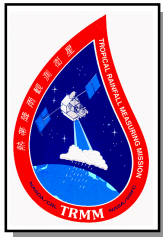
LIS Instrument

- Two Routine MSFC real-time command requests were performed on 01-123 (May 3rd) and 01-145 (May 25th) to reduce packet sequence errors
- No open issues



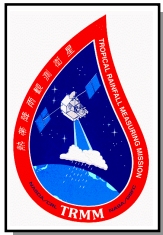
CERES/VIRS Instruments

- **CERES**, no change in status.
 - No Science collection due to, Data Acquisition Processor (DAP) Telemetry Drop Out and Possible Failure (Anomaly #81, 00-061 Jun 14th, 2000)
 - LaRC has plans on performed a series on Gimbal tests on the weeks of May 21st and May 28th.
 - CERES powered OFF on May 29th in preparation for Solar Array off pointing tests.
- **VIRS**, continues to operate nominally.
 - Two sets of VIRS Solar Calibrations were performed on 01-143 (Wed., May 23rd).



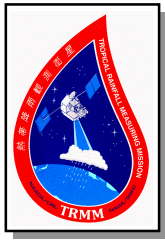
TMI / PR Instruments

- No Open Issues with the TMI instrument
- PR LNA Analysis command request was performed on 01-141 (May 21st)
- No PR External Calibrations were performed in May
- No new PR interference was reported by NASDA in May
- Analysis continues as to the feasibility of operating the PR instrument at an altitude of 400 km in order to extend mission life - FDF is providing predicted orbit elements to NASDA



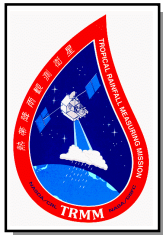
Ground System

- The new System Software Release 9.1 patch is complete and will be installed within the next several weeks. It will be delivered to SOTA-7 and String-2 first, then String-3. After final evaluation, it will be made operational on String-1.
- The backup test and command string in Building 14 SOTA-7 is operational for emergencies and training. Full Mission Planning scheduling and load-building and trending capabilities still need to be implemented and verified.
- PC for PACOR-A operations completed final Security acceptance and has been installed on the closed network.
- Two 100 MHz workstations will be installed in the MOC next week.



Upcoming Activities

- 0-2 Months
 - Award one Spacecraft Analyst Certificate
 - Complete the full Backup Control Center implementation including scheduling and mission planning
 - Complete Rel 9.1 installation to all strings and SOTA bay
 - Parallel operations with the new PACOR-A system and new web-based user interface training (ORR in June)
 - Test and install new Transponder-2 AOS Offset Relative Time Sequences
 - Install recently acquired GRO equipment - two 100 MHz workstations
 - Continue to close open CCRs, MOCRs, and MSR Action Items
 - Complete testing and training with contingency SA 55° Offset configuration



Upcoming Activities

- 2-3 Months
 - Award two Console Analyst certifications to new employees
 - Complete testing and training with PSIB alternate telemetry patch
 - End Of Life Planning, Testing, and Simulations continue